Land Use – Land Cover Breakout

October 6th, 2004
SOLEC 2004

Discussion Worksheet Questions and Answers

Number of Worksheets Submitted: 18

Focus Question 1: What are these indicators telling us? Are the individual indicators and overall assessments correct and useful? Are they telling us things that can lead to better restoration and protection of the Great Lakes basin ecosystem?

Regarding forestry indicators, product is an early effort. It is more important to look at linkages between forestry indicators of basin health than actual reported values at this point.

Current conditions and potential. Indicators are useful as a monitoring tool. They can serve as baseline data so that trends data can be established.

The indicators are telling us that we have much to learn. They are useful and appropriate. Yes, data need better information on limits before action and desired results.

Ag ones lack an assessment, they should be rated as "mixed, improving". Need endpoints for ag ones. Not illustrated – forests: #'s with management plans leads toward more sustainable management.

Emerging trends in forest land protection, i.e. sustainable forest management programs – sustainable Forestry Initiative, Canadian Standards Forest Certification and Forest Stewardship Council – the aggregate number of acres of land in their program, as available, add to the knowledge of the state of forests.

This is perhaps the most important (pressure) indicator. Land cover ratio is one of the most influential factors on condition at the watershed scale. E.g. the opportunity for human – nature interaction, biodiversity integrity, sustainable communities are all seriously affected by this ratio. Therefore, it is more important to monitor the cover ratio than the conversion rate.

7006, 28, 54, 61, and 62 are "response" indicators. As useful as this information may be, it has to be linked to "state" indicators, in order for management to assess any given issue. Agriculture indicators are all "risk" indicators – need more "state" indicators.

When you address a single basin (all 5 lakes) in one number it does not tell you very much. To compare land use with different classification schemes is not helpful.

- No information about trends
- Some information about how we are using land but need better information about changing pressures – how do we deal with pressures from recreational land use i.e. cottages that are increasingly used on a year-round rather than seasonal basis and with more of the comforts of home
- Is there really good data behind the indicators?

Need to be consistent on units and weighting of indicators so when bundled in various ways, one small area/measure doesn't affect the bundled indicator out of its degree of importance.

A number of the indicators simply present current status of a condition but are not related to a desired state or condition. Such indicators are not useful e.g. number of farm plans, # of nutrient management plans.

Good start, good set of indicators; however, we need consistent methods (GIS) to be applied throughout the Great Lakes basin for this bundle of indicators to be useful.

- Few trends
- Sorest cover stable, increasing
- 22 indicators in that bundle, only 3 are assessed in 2004; 2-3 assessed previously
- Not yet correct and useful
- Not yet telling us things that can lead to better restoration and protection – they are not even currently capturing existing data/knowledge

Urban density and sprawl - use of "smart growth" strategies and management to prevent sprawl and environmental degradation
Brownfields – important and valuable use of space instead of spreading outwards beyond the necessary limits of a city/community/town.

- Need more data and better integration
- #7062 Integrated Pest Management does not solely address many forest/wetland invasive species. Needs to be included or as a separate indicator.

The indicators are telling us that the conditions are improving, although urbanization is a growing threat. The text for indicator 8500, Forest Lands – Conservation of Biological Diversity, fails to discuss area within the basin, lands in National Forests and land enrolled in sustainable forestry programs (e.g. Sustainable Forestry Initiative). Although these lands do not fit within the IUCN "protected" categories, they do and will continue to provide significant contributions to the conservation of biological diversity. Mr. Brad Williams of the American Forest and Paper Association can provide data on area enrolled in the SFI in the Great Lakes basin (202-463-2744). Area in national forest land in readily available through the US forest service. Other sustainable forestry programs that should be considered are the Canadian Standards Association and the Forest Stewardship Council. The point is to include, in addition to information on IUCN categories, data on area where there is programmatic protection of biological diversity, specifically national forests and land enrolled in sustainable forestry certification programs.

Urban Density
- ambiguous lots of undeveloped land within
- needs a consistent denominator – developed land
- currently denominator is municipal boundaries
- population growth/developed land growth

Alternatives – housing mix – overall – percents
- housing mix - -last 5 years – percents

Focus Question 2: What refinements, simplifications, or enhancements would you propose: To the assessment process? To the bundling of indicators?

Think of both bundling models. Look at geographic bounds (watersheds, ecoregion, basin-0wide, political unit). Look at driving force – state response model as possibilities. Also segregate by scale and develop hierarchal process to do more detailed indicator – based assessments with a more focused group of stakeholders to get to action steps.

This is a very large bundle of indicators (from urban density to conservation of biological diversity)

Need more easily comparable and complete data. Agriculture use categories need data showing percentage of whole. Particularly how many mile of stream edge and where needs to be captured.

- Too much repetition still with these bundles
- Choose metric that would be common to several indicators
- Land use/land cover should be related to a common goal/vision e.g. water quality – beyond pressure/stat response?
- Index – how land cover impacting sustainable use

Forest indicator provides incomplete coverage of "protected" lands. Forest lands under certification programs provide a high level of assurance that these lands are being managed and monitored for qualities the public values; biodiversity conservation, wildlife management, water and air quality, economic consideration and other qualities. There are over 14.3 million acres enrolled in the SFI program in the lake states and over 8.4 million acres in Ontario. This needs to be documented.

- Simplify into 3 categories of urban/agriculture/natural as a ratio, at least for RAPs
- Indicator report is more about layers of data to be collected (databases as a source) than the layers to be reported on or the message to be brought forward e.g. why report on 30 classes of forest types if your point is really about the percent natural cover as the indicators?
- The indicators need distinction between pressure, response – Is this one a pressure?
- Need to measure relationship between the condition and some notion of health – not just state or trend on change but a desired state

Nutrient concentration; soil loss (sediment concentration) to aquatic system, toxic seepage from contaminated sites; pesticide concentration in water and sediment. #7002: what kind of information? There is no standardization in land class – urban developer/agriculture and forest specialists must agree on common "large" land classes (and, if possible, on "smaller" or more specific classes as well) in order to integrate information coming form all these practitioners.

A standardized classification of land use at a minimum vs. the US NLCD protocol at 30m grids for the entire basin. This data should then be summarized by watersheds or subwatersheds and combined with slope classes and ecoregions.

- Need to add transportation – modal split
- Do we need to discuss water use in coastal areas
- Need trends information – what is the baseline

Nutrient Management #7061 – number of acres rather than number of plans or percent of total farm area. Indicators need to be appropriately weighted to reflect the relative importance of the indicator when it is bundled.

- Have the authors of land use indicators contacted those developing urban indicators? I would recommend consulting with Association of Municipalities of Ontario, Federation of Canadian Municipalities and US counterparts
- Consider looking at indicators of urban sustainability – various examples

- Why not develop an indicator for land use that draws on property assessment databases
- Contact Brownfield Institute

- Focus on imperviousness as a methodology to assess impact of land use and urbanization
- A lot of redundancy in indicators

Assessment
- Use existing data from municipalities, conservation authorities etc
Bundling
- Seems to be more categorization then bundling – how are indicators within bundles combined/assessed to establish an overall assessment?

The bundling approach is good. Need to take a holistic approach but in the future of bundling, you need to remember that there are 5 or 6 different basin areas that can be bundled in some respects but not in others. Some repetitions but some need to remain differences between basin issues.

Need to include a focus on wetlands as a part of the bundle of indicators (there are many non-coastal wetlands).

Framework: Land Use/Cover
- Water quality
- Biodiversity
- Energy use
Framework = forest land use and indicators – use Montreal Process "framework - % criteria and indicator areas"
Rural non-farm population within 50km of city centre – capture rural residential estates – travel to central city.
Measure of urban dispersion – differenced in density/growth across the CMA/SMSA
Ground surface hardening – very important indicator – needs further development
Alternative: length of journey to work.

Urban density – incorrect use of CMAS

Focus Question 3: What are the key management implications that emerge from evaluating the indicators in this category?

Many want to consider a scaled approach to indicator identification based on the decisions to be made. Be concerned about investment relative to decisions to be made.

Fewer indicators for broad scale analyses and decisions. More indicators close to the action.
I think that the scope of SOLEC should be Great Lakes basin-wide and among basins: what is the same and different among basin/Great Lakes?
State Foresters – Planning Boards

Are we meeting the GLWQA needs? Is there something hat needs to be done better?

There is a significant need to both capture and revise the legal framework for response to the problem. How do you translate basin wide data into action on a State or local basis (there is essentially only one province)?
The urban density indicator is too ambiguous. While an increase in density can be an indicator of better utilization, it can also indicate sprawl. We need to also distinguish between water quality and quality of biota. These require different data costs and reading of the data.

SOLEC should affect programs/policies/incentives but wouldn't be used to create by-laws. E.g. Stormwater management and its relationship to impervious surfaces. If the bundle is useable by managers then they need to have an assessment completed. SOLEC needs to tap into Ontario's SMART Growth incentive information/data.

Management Challenges:
- Identifying shifts in the location and viability of biodiversity across the landscape as the forest landscape changes.
- Identification/realization/decision – when is enough (#'s) biodiversity present on a unit of land?
- Greater bye-in from all landowners to provide complete picture of currents state on biodiversity and then determine management needs and activation of stakeholders to implement the needs.

The right institutions that hold data have to be engaged in evaluating the indicators, in the case of land use, namely state and regional agencies have to work together. Political will is needed to obtain that.

They currently do not exist as presented. They can be established by comparing known samples (fish, inverts, etc) to contributing watersheds above them. Those management indicators may include: Sediment, riparian health (% streams and shoreline that in forested), hydrologic modification (dam density, watershed, road density and number of stream crossings), point sources, and introduced species.

Management of land uses that are largely driven by market pressures – we have difficulty monitoring these pressures.

If trying to preserve habitat it would be difficult to develop policy form this group of indicators.

- Great Lakes managers have been rooted in resource management, water quality disciplines. Need to draw in urban experts – those engaged in urban indicator development.

Observation – it is now glaringly obvious that the dissolution of the Canadian Lands Directorate within Environment Canada was a major mistake.

Once assessed across the basin, these indicators will help management planning exercises such as watershed and fish management plans.

- Need current data assessment and trends for each indicator
- Cobble beach and sand dune protection needed
- Need to tap into land use planning reform/studies/Smart Growth information to inform these.

- Involvement of various organizations, communities, agencies in determining the status of the indicators
- Bundling needs to take a more holistic approach
- Need to focus on basin by basin when looking at land cover/use because each basin is different with varying populations and community/city needs
- Needs to remain having separation between land cover – land conversion indicator and the "Area, Quality ad Protection" Indicators. The latter indicators area focused on specific areas that require individual assessments while land cover focuses on a larger scale. The "land cover – indicator" could be separated into smaller "bundles" or groupings.

- Large scale to local decision making
- Who are stakeholders targeted?
- What is driving land use change?

The key challenges are to identify desired future condition for each bundle or indicator and develop incentives to encourage programs towards those DFCs.

Senior Managers
- Unambiguous story/framework/vision that will catch managers interest, that they will quickly understand and use

Program Manager
- Disaggregate/drill down to use in a particular area
- Different levels – basin wide, lake, ecosystem

Decision Makers
- Rate of change – large scale information good but how can it be applied at local level consistent method
- Identify stakeholder target – SCALE

Suggested Indicator

Change in Urbanization
Rate of urban population change divided by rate of rural/urban land use – cover change over 5 years for Canada's CMAs and USA SMSAs
Greater sensitivity to change

Organizations to do land use indicators:
- Federation of Canadian Municipalities
- Association of Municipalities of Ontario